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ANNUAL CONFERENCE ON FIRE RESEARCH
Book of Abstracts
November 2-5, 1998

Kellie Ann Beall, Editor

Building and Fire Research Laboratory
Gaithersburg, Maryland 20899

United States Department of Commerce
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U.S. Department of Commerce
William M. Daley, *Secretary*
Technology Administration
Gary Bachula, *Acting Under Secretary for Technology*
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Fire Tests of a Fixed Gaseous Fire Extinguishing System for Marine Application

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Six full scale fire tests were conducted to evaluate a gaseous agent fixed fire extinguishing system for marine applications. The tests consisted of the four International Maritime Organization's MSC Circular 776 fire tests (IMO Fire Test # 1, # 2a, # 3, and # 4), a low temperature cylinder discharge test, and a verification test for a side wall discharge nozzle. The gas agent used was FM200®, and the tests were performed inside the IMO Fire Test Compartment located at the United State Coast Guard Fire & Safety Detachment on the test vessel STATE OF MAINE in Mobile, Alabama.

Ninety-five channels of data were recorded measuring temperatures and pressures throughout the gas distribution system; temperatures, pressures and gas concentrations inside the test compartment; and flame temperatures at various fire locations during the tests. The agent discharge times and fire extinguishment times were established based on those measurements and five video cameras installed to watch progress of the tests from a control room.

Figures 1 and 2 show the pressure and temperature measurement at various locations of the gas distribution system during the cold discharge test. The gas agent was discharged from cylinders maintaining –5 °C. The test results verified that the system met the performance requirements in terms of the agent discharge time and the fire extinguishemnt times as specified by IMO Fire Test Protocol[1]. No adverse effects on the system performance due to the cold discharge was observed in the test.

Other test results and issues related to IMO Fire Test Protocol and cold discharge tests will be discussed.

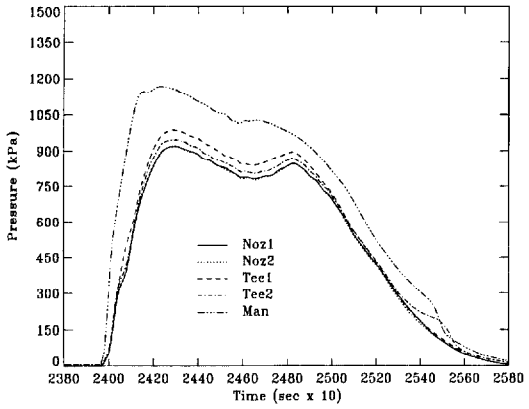

Figure1. Pressure measurement

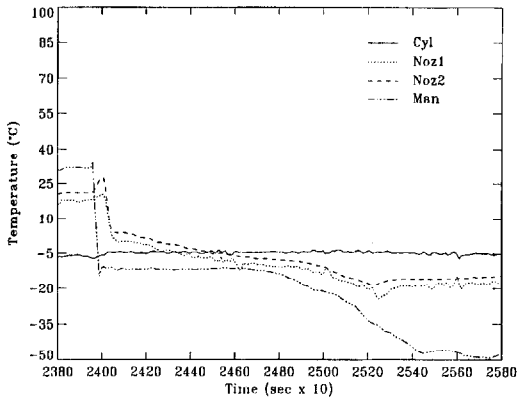

Figure 2. Temperature measurement

REFERENCES

1. "Guidelines for the Approval of Equivalent Fixed Gas Fire-Extinguishing Systems, as Referred to in SOLAS 74, for Machinery Spaces and Cargo Pump-Rooms," MSC/Circ. 776, 12 December 1996, International Maritime Organization, 4 Albert Embankment, London SE1 7SR.

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